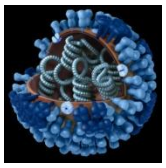

Montana Public Health Laboratory
Influenza Statewide Call Notes
October 7, 2010

Current status of Influenza

1. CDC monitors what is happening in the southern hemisphere and around the world to predict what will circulate in U.S.
    a. In Australia, 70% of recent isolates were 2009 H1N1, and 30% were Influenza B
    b. In South Africa, mix of 2009 H1N1, A (H3N2) and Influenza B
    c. In southern China, predominately Influenza A (H3N2)
    d. In Europe, influenza activity is low
    e. In Canada, ILI is at the baseline level
2. No current activity in the U.S. – usually activity commonly peaks in January or February
3. Although Influenza seasons are unpredictable, it is expected that 2009 H1N1 viruses and other seasonal viruses (H3) and potentially Influenza B will circulate this year in the U.S.
4. It appears that the old H1N1 that we saw in years past has been supplanted by 2009 H1N1
5. The current vaccine strains appear to be a good match for the circulating viruses.
6. ACIP (Advisory Committee on Immunization Practices) recommends that all Health Care Workers with patient or long term care residents contact be vaccinated
    a. Nasal-spray flu vaccine (LAIV) recipients are unlikely to pass the vaccine viruses to others. However, since this is live attenuated vaccine, there is a possibility that patient specimens could be contaminated, especially when we are testing by a sensitive PCR assay or viral culture.

Rapid testing

1. There are 10 rapid diagnostic FDA approved assays on the market.
    a. Some can differentiate Influenza A and B
    b. Some can identify A and B but not differentiate
    c. Some are waived
    d. None can subtype Influenza A (yet)
2. Product inserts and research publications indicate:
    a. Sensitivity 50 – 70%
    b. Specificity 90 – 95%
3. Very young children shed for longer periods, and at higher titers, so may have better performance in this age group
4. Positive and negative predictive values vary considerably depending upon the prevalence in the community
    a. False positives (and true negatives) when prevalence is low such as the beginning of the influenza season
    b. False negatives (and true positives) when prevalence is high – typically during the influenza peak
    c. Example: Even with a very specific test (98%) , if the prevalence is very low (2.5%), the PPV is poor (39 – 56%) and the false positive rate is high (44 – 61%) – like tossing a coin.

d. Interpretation must take into consideration the clinical characteristics of the case. If an important clinical decision is affected by the test result, the rapid test should be confirmed
e. Example: When prevalence is high (40%), and the sensitivity of the test is high (90%), then the NPV is very good (93-94%), and the false negative rate is low (6 – 7%).
f. Again, the interpretation must take into consideration the clinical characteristics of the patient. If an important clinical decision is affected by the test result, the rapid test should be confirmed

5. There is a role for these rapid tests, because it can help establish whether influenza is present in a specific patient population and help healthcare providers determine how to use their clinical judgment for diagnosing and treating respiratory illness.
6. But, these tests do not address the public health need for isolated influenza virus. Only isolates allow Public Health to determine the match between circulating influenza viruses and those viruses contained in the vaccine.

Laboratory Surveillance and Laboratory Diagnostic Testing Guidelines

Debbie Gibson provided information about laboratory surveillance testing and diagnostic testing. The information is contained in the guidelines that are posted on the Laboratory Services Bureau website at **www.lab.hhs.mt.gov** under Hot Topics.

Communicable Disease Epidemiology Section

Elton Mosher from the Communicable Disease Epidemiology Section told participants that CDEpi are also requesting specimens from patients hospitalized with severe respiratory disease of unknown etiology, and from pregnant women. Please contact the CDEpi section at 406-444-0273 if you will be submitting these specimens.

Questions

Q: Will both Influenza A and Influenza B PCR be performed on the submitted specimens?
A: Yes. Based on circulating viruses in other parts of the world, we anticipate that we will be seeing Influenza B this year as well as Influenza A.

Q: Please clarify the information about specimens being collected within 3 days of disease onset.
A: Specimens should be collected within 3 days of onset of symptoms. After 3 days, the viral shedding is reduced, and may no longer be detectable, depending on the assay. We anticipate that highly sensitive RT-PCR testing will detect virus for longer than 3 days, but rapid testing may not.

Wrap Up

Thanks for participating. We are interested in your feedback, to see if you found this conference call to be helpful. Please contact Crystal Poppler at cpoppler@mt.gov with your comments.

As always, you can contact us with any questions at 1-800-821-7284.